

Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)



Applicant's or agent's file reference NEC03P025	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/JP2003/007594	International filing date (day/month/year) 16 June 2003 (16.06.2003)	Priority date (day/month/year) 17 June 2002 (17.06.2002)
International Patent Classification (IPC) or national classification and IPC C08G 85/00, C08J 5/00, C08L 101/16 // C08L 101:00		
Applicant NEC CORPORATION		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
These annexes consist of a total of 10 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 16 June 2003 (16.06.2003)	Date of completion of this report 17 December 2003 (17.12.2003)
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/JP2003/007594

I. Basis of the report

1. With regard to the elements of the international application:*

- ☐ the international application as originally filed
- ☒ the description:
pages 1-12, 14-22, 24-54, as originally filed
pages _____, filed with the demand
pages 13, 23, filed with the letter of 08 December 2003 (08.12.2003)
- ☒ the claims:
pages _____, as originally filed
pages _____, as amended (together with any statement under Article 19
pages _____, filed with the demand
pages 1, 6, 7, 10, 22-42, filed with the letter of 20 October 2003 (20.10.2003)
- ☐ the drawings:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☒ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☒ the claims, Nos. 2-5, 8, 9, 11-21
- ☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/ 03/07594

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1, 6, 7, 10, 22-42	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims	1, 6, 7, 10, 22-42	NO
Industrial applicability (IA)	Claims	1, 6, 7, 10, 22-42	YES
	Claims		NO

2. Citations and explanations

- Document 1: US 5491210 A (Kimberly-Clark Corp.), 13 February 1996
- Document 2: US 5489451 A (Roehm GmbH Chemische Fabrik), 06 February 1996
- Document 3: WO 96/15159 A1 (Shell Internationale Research Maatschappij B. V.), 23 May 1996
- Document 4: JP 2000-001529 A (The Yokohama Rubber Co., Ltd.), 07 January 2000
- Document 5: JP 2001-081240 A (The Yokohama Rubber Co., Ltd.), 27 March 2001
- Document 6: JP 61-205447 A (Fuji Oil Co., Ltd.), 11 September 1986
- Document 7: EP 134649 A2 (National Research Development Corp.), 20 March 1986
- Document 8: JP 2000-281805 A (Daicel Chemical Industries, Ltd.), 10 October 2000

The inventions that are set forth in claims 1, 6, 7, 10 and 22-42 do not involve an inventive step in the light of documents 1-8 cited in the international search report. Documents 1-5, 7 and 8 disclose configurations for thermoplastic resins used in molded articles, which are imparted with a uniform mechanical strength and a processability that allows re-molding by incorporating a

functional group that forms a thermally-reversible cross-linking structure therein. In addition, the aforementioned thermally-reversible cross-linking structure is indicated as being a urethane bond in document 1, a Diels-Alder bond in documents 2-4, a bond formed by reacting carboxyl groups with vinyl ether groups in document 5, and an ionic bond in documents 7 and 8; meanwhile, the principal chain of the aforementioned resin is indicated as being an aliphatic polyether or an aliphatic polyester, which are thought to be biodegradable, in document 1, and polysaccharides, which are thought to be biodegradable, in documents 7 and 8. Furthermore, document 6 indicates a resin that is a biodegradable polymer composition wherein polysaccharides and proteins form thermally-reversible cross-linking structures.

Consequently, it would be easy for a person skilled in the art to conceive of combining functional groups which form thermally-reversible cross-linking structures, such as those indicated in the aforementioned well-known documents, with the principal chain structures of well-known biodegradable resins. In addition, an examination of the effects of the inventions that are set forth in the present application shows that the effects could have been predicted by a person skilled in the art in the light of the disclosures of documents 1-8; therefore, the inventions cannot be considered to exhibit a prominent synergistic effect that could not have been predicted as a result of configuring these specific combinations of functional groups and principal chain structures.